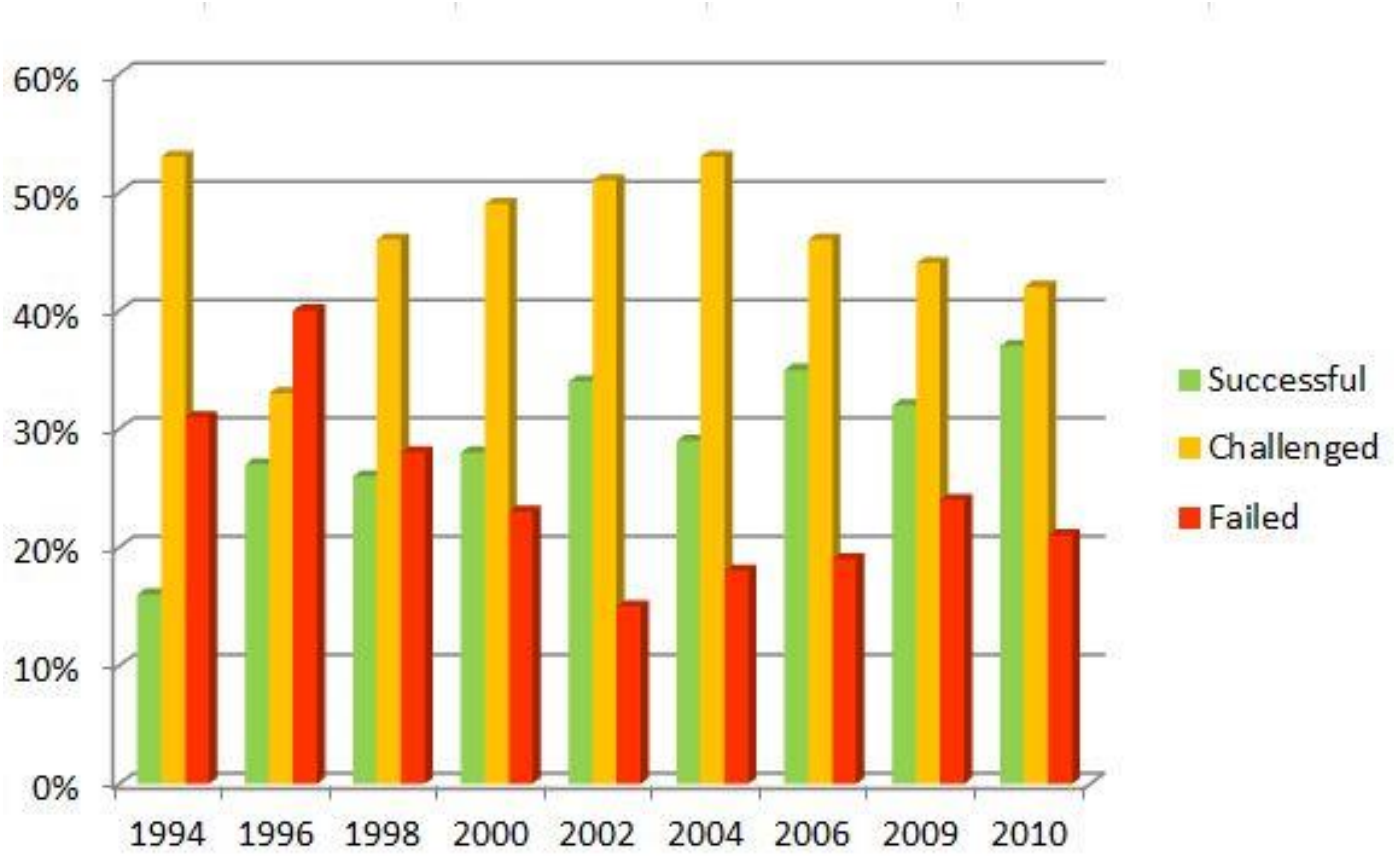
Introduction to Software Processes and Management

Shanika Karunasekera
Department of Computing and Information Systems
University of Melbourne
karus@unimelb.edu.au

Introduction

- **Why do we need software engineering?**
- **History of software engineering**

Software Failures: Project Statistics



Standish Group Chaos Reports: Source: https://www.projectsmart.co.uk/white-papers/chaos-report.pdf

More Project Statistics

MODERN RESOLUTION FOR ALL PROJECTS

	2011	2012	2013	2014	2015
SUCCESSFUL	29%	27%	31%	28%	29%
CHALLENGED	49%	56%	50%	55%	52%
FAILED	22%	17%	19%	17%	19%

The Modern Resolution (OnTime, OnBudget, with a satisfactory result) of all software projects from FY2011–2015 within the new CHAOS database. Please note that for the rest of this report CHAOS Resolution will refer to the Modern Resolution definition not the Traditional Resolution definition.

What accounts for software failures and delay?

- **Misunderstanding of requirements: 53%**
- **Design failures: 22%**
- **Project management: 13%**
- **Other: 12%**

Introduction

- **Computer Science vs Software Engineering**
- **Software Engineering vs Other types of Engineering**

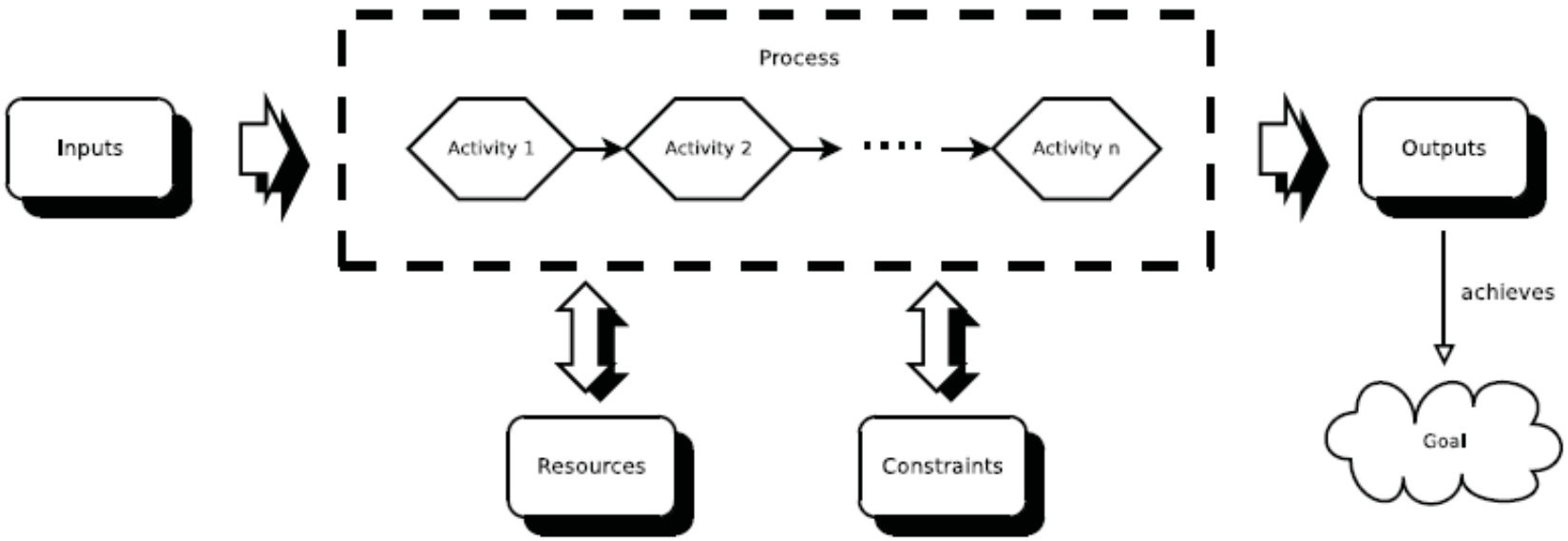
SWEBOK

- software requirements
- software design
- software construction
- software testing
- software maintenance
- *software configuration management*
- *software engineering management*
- *software engineering process*
- *software engineering tools and methods*
- *software quality*
- software engineering professional practice
- software engineering economics
- computing foundations
- mathematical foundations
- engineering foundations

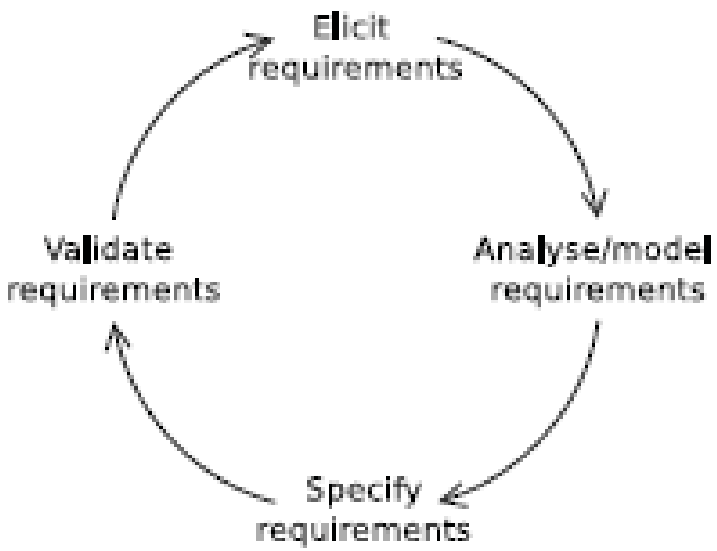
Software Processes

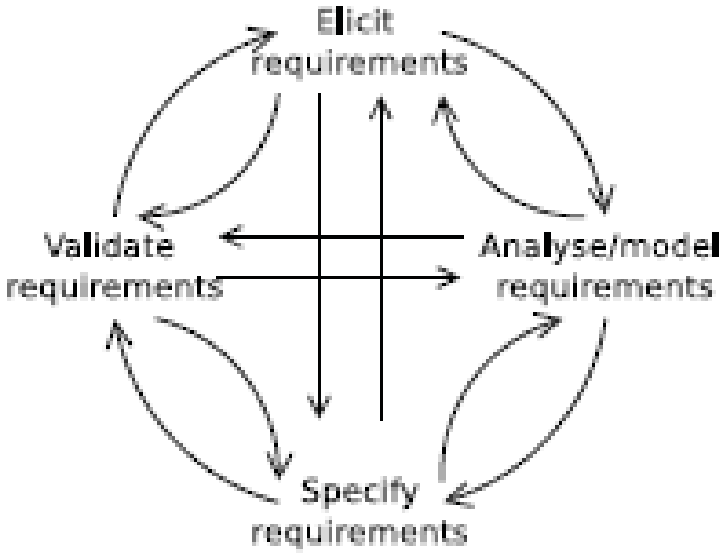
- What is a process?
- Examples of processes
- Why do we need processes?

Process model

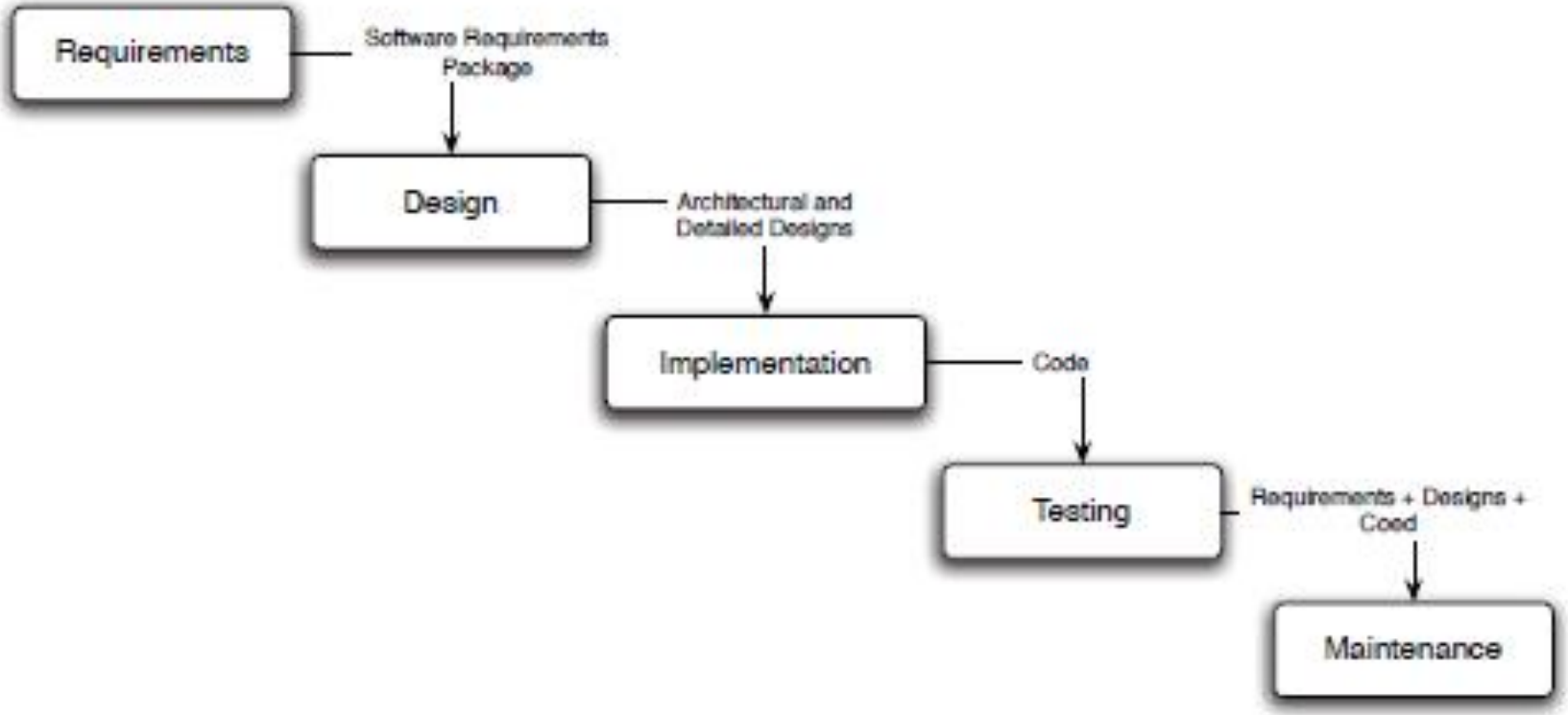


Examples of processes





Examples of processes



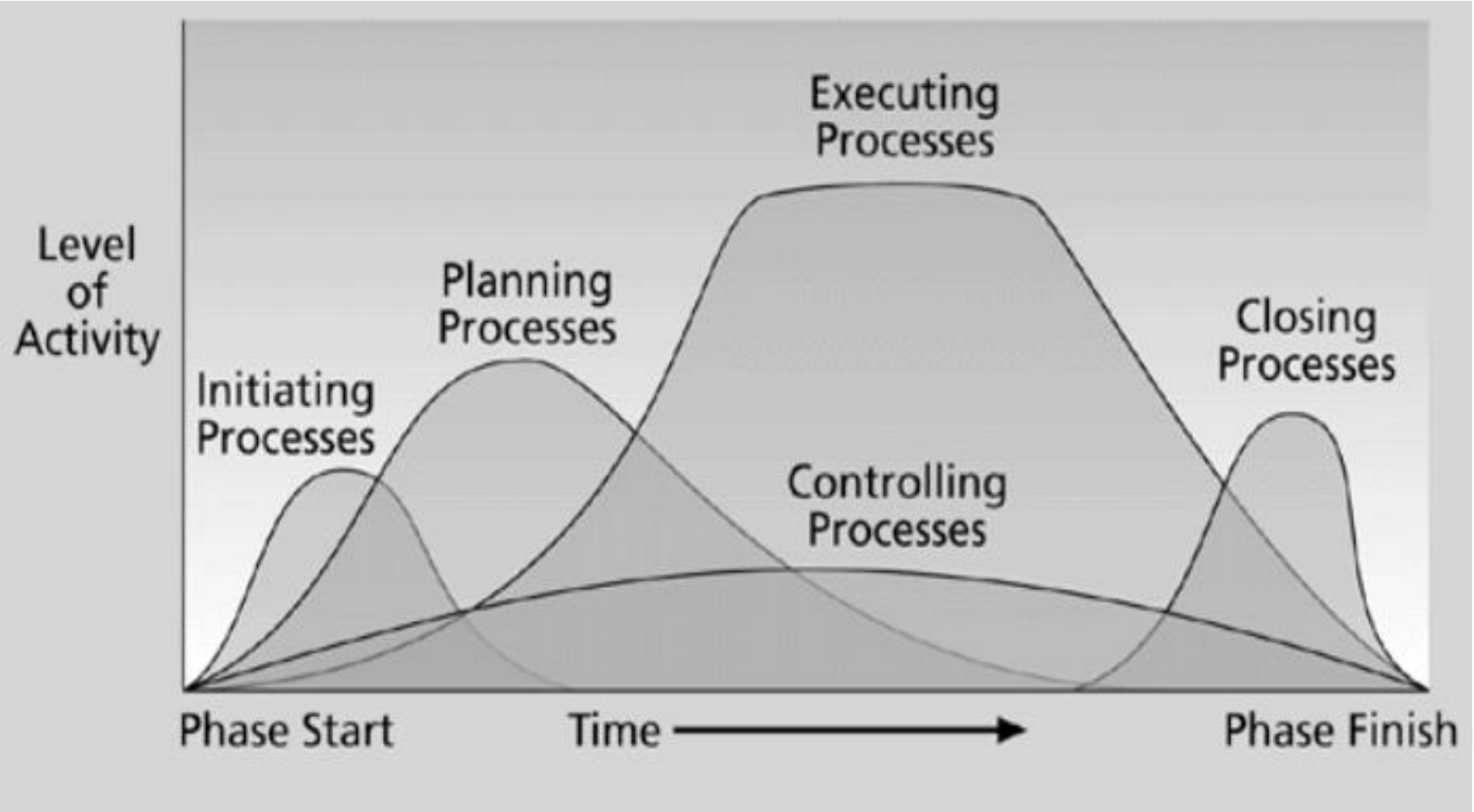
Project Management

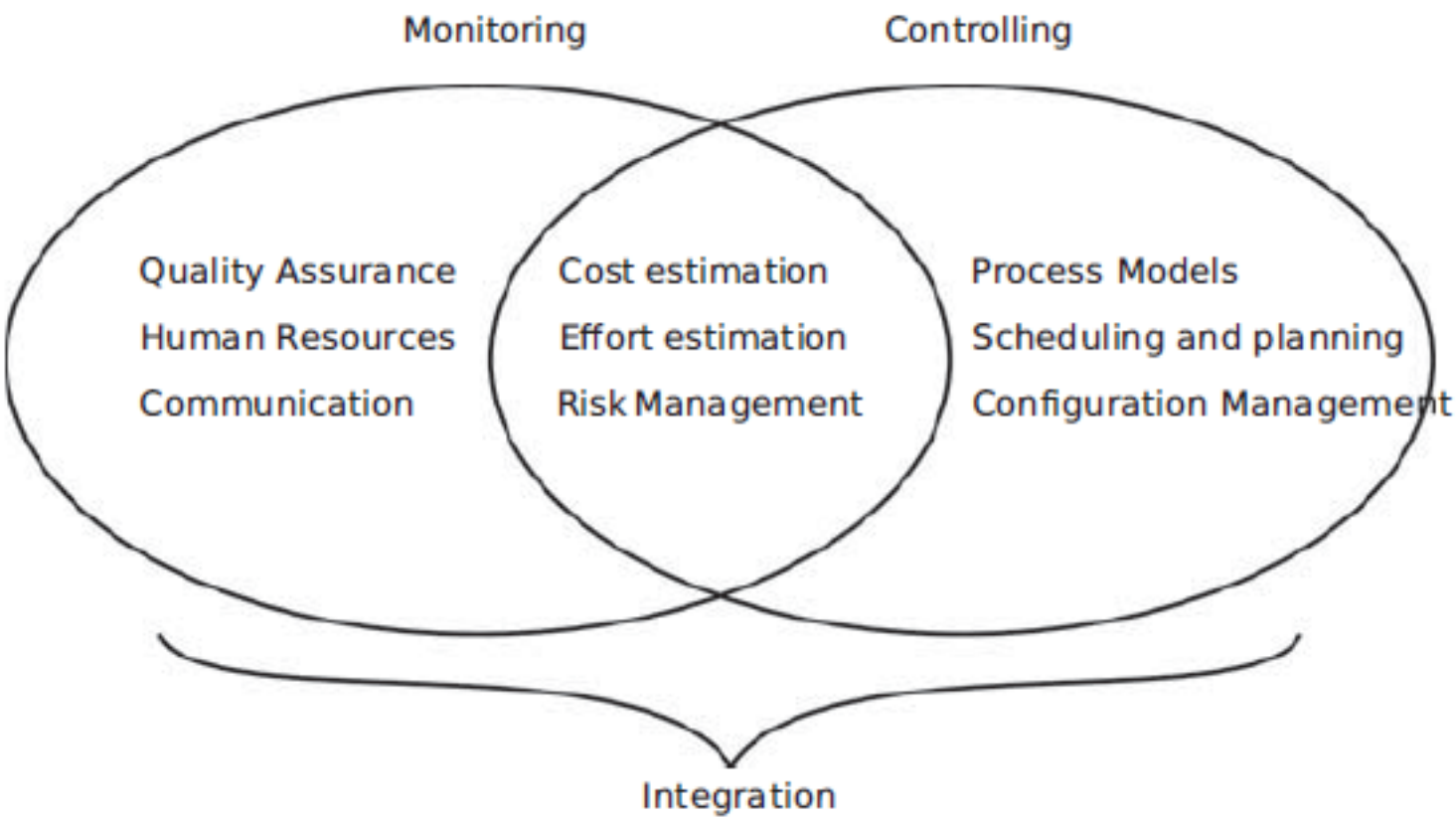
- **What is a project?**
- **What is project management?**
- **Management via monitoring and controlling**

Process and Project Management

- **Initiating processes**
- **Planning processes**
- **Executing processes**
- **Closing processes**

Overlap of Process Groups




Monitoring
Controlling
Quality Assurance
Human Resources
Communication
Cost estimation
Effort estimation
Risk Management
Process Models
Scheduling and planning
Configuration Management
Integration